Commonwealth of Kentucky
Division for Air Quality

STATEMENT OF BASIS

DRAFT TITLE V PERMIT NO. V-07-18
TENNESSEE VALLEY AUTHORITY
PARADISE FOSSIL PLANT
DRAKESBORO, KY
JUNE 28, 2007
MARTHA M. ALLMAN, REVIEWER
SOURCE I.D. #: 21-177-00006
SOURCE A.I. #: 3239
ACTIVITY I.D. #: APE2007001

BACKGROUND

On April 9, 2007, Tennessee Valley Authority (TVA) submitted an update to the Title V Permit application for its Paradise Fossil Plant (PAF) originally submitted in May 1996. The update was provided to address objections made by the EPA to the proposed permit, V-04-024, initially issued on December 29, 2004. TVA requested that this permit be withdrawn on June 23, 2006. To address EPA objections, TVA has agreed to reduce the Unit 3 limit of 5.4 lbs SO_2/MMBtu to 1.2 lbs SO_2/MMBtu, effective when the unit is scrubbed and discharging flue gas through the new scrubber stack. The new scrubber for Unit 3 is a single module unit and was constructed with by-pass capabilities to the original stack. When Unit 3 is not scrubbed, the emission limit will be 3.1 lbs SO_2/MMBtu, effective when discharging flue gas through the existing Unit 3 stack.

TVA addressed another EPA objection by removing from the application two lime storage silos (formerly EQPT15, renumbered as Emission Units 53-54) as these are decommissioned and will not be returned to service. TVA further agreed to additional monitoring requirements for the hours of operation and limestone throughput for emission Unit 3 Limestone Handling system (formerly GACT 10, renumbered as Emission Units 75 and 76).

In addition the facility has provided updates and subsequent permitted modifications that were either missed in the original Title V application but surfaced from their latest auditing. The updates include new activities associated with the addition of the Coal Processing system, updated forms for the addition of the Selective Catalytic Reduction (SCR) units on each heat exchanger, the Unit 3 Limestone Handling system, updates to the Unit 3 section of the application to address the new scrubber, and the addition of the Coal Fines Recovery Process. These units were constructed pursuant to 401 KAR 51:017, Section 22.

FACILITY DESCRIPTION

The facility consists of three cyclone-furnace coal-fired boilers, three distillate oil-fired heating boilers, eleven distillate oil-fired space heaters, three natural-draft cooling towers, and solid fuel, limestone, ash, and gypsum handling processes.

Coal is delivered by rail, truck and barge. Currently, most of the coal is non-compliance coal and is cleaned in a coal wash plant. TVA is currently cofiring coal fines and plans to begin cofiring wood waste. Waste products from sawmills and other wood-working facilities will be burned at a maximum of 5% of the boilers heat input (13% by weight).

All three coal-fired boilers are equipped with staged overfire air and selective catalytic reduction modules for nitrogen oxides emission control. Boiler Units 1 and 2 are equipped with venturi-type limestone slurry flue gas desulfurization scrubbers. Boiler Unit 3 is equipped with an electrostatic precipitator and a wet limestone FGD scrubber. Fly ash collected by the ESP is sluiced by the wet fly ash handling system to the fly ash pond for disposal. Bottom ash (slag) is wet sluiced to a storage pond, dewatered and then reclaimed for sale to an offsite customer. Gypsum waste slurry effluent from the limestone FGD scrubbers is wet sluiced to the onsite stacking area for disposal.

All transfers from coal conveyors are within enclosures unless otherwise noted. Foam suppression is also used as needed to provide fugitive emissions control for the conveyors feeding the old conditioners (BC-11 and BC-12), the new conditioners, and breakers 1-7 (BC-1, BC-2, BC-3, BC-50 and BC-51), compliance coal reclaim (BC-18), transfer station H (BC-32 and BC-54) and conveyor BC-55. A water spray is used as needed for fugitive emissions control on BC-49 in the barge unloader loop.

TVA has renumbered most of the emission points from its previous permits. Appendix A contains a listing comparing the new numbering system with previous permits, as well as the identification number used in DAQ's emission inventory system.

Emission Units 1 and 2 Coal Fired Boilers, 6959 MMBtu/hour

Description:	Boiler Units 1 and 2, 6959 MMBtu/hour, each, cyclone-furnace coal fired boilers
Controls:	Overfire air, Selective Catalytic Reduction (install Unit 1 2001, install Unit 2, 2000), Flue Gas Desulfurization
Primary Fuel:	Coal
Alternative Fuels:	No. 2 fuel oil for startup Coal fines maximum14% by weight. Wood Waste maximum 5% of the boilers heat input (13% by weight). Other nonhazardous waste materials such as used oil with less than 50 ppm PCB, boiler cleaning chemicals, solvents, oil-contaminated soil, rags, absorbent materials/rags and papers.
Construction Commenced:	1963

These units are subject to 401 KAR 61:015, Existing indirect heat exchangers applicable to an emissions unit with a capacity of more than 250 MMBtu/hour, which commenced construction before August 17, 1971. 40 CFR 60 Subpart D[1] and Da[2] are not applicable because these units were constructed prior to the effective date of those regulations. However, these units are subject to the federal Acid Rain and NO_X Budget Programs.

[1] 40 CFR 60 Subpart D, Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971.

[2] 40 CFR Subpart Da, Standards of Performance for Electric Utility Steam Generating Units for Which Construction Commenced After September 18, 1978

401 KAR 52:060, Acid rain permits, incorporates by reference 40 CFR Parts 72 to 78. These units have SO_2 allowances as listed in 40 CFR, Part 73.10 for each year from 2007 to year 2011. Emission Unit 1 has 10,818 SO_2 allowance allocations for the years 2007 to 2009, then 10,841 allowances beginning in the year 2010. Emission Unit 2 has 12,300 SO_2 allowance allocations for the years 2007 to 2009, then 12,326 allowances beginning in the year 2010. The NO_x limit and the averaging plans are established by 40 CFR 75 and 76.

401 KAR 51:160, NO_X requirements for large utility and industrial boilers, and 40 CFR 97, Subpart C, applies to these units. The NO_X Budget Permit application for these units was submitted to the Division, and received on November 11, 2004. Requirements contained in that application were incorporated into and made part of the NO_X Budget Permit. Pursuant to 401 KAR 52:020, Section 3, the source shall operate in compliance with those requirements.

Emission limits are as follows:

Pollutant	Emission Limit	Averaging Period	Regulations
PM	0.11 lbs/MMBtu	3-hour	401 KAR 61:015, Sec. 4(1) 40 CFR 51.110(a)
Opacity	Unit 1: 61 % Unit 2: 50 %	6-minute	401 KAR 50:055, Sec 2(6) 40 CFR 52.939(c)(54)
SO_2	1.2 lbs/MMBtu	24-hour	401 KAR 61:015, Sec 5(1) 40 CFR 52.939(c)(49)
NO_X	0.86 lbs/MMBtu	annual	401 KAR 52:060 Sec. 2, 40 CFR 76.6(a)(2)

Emission Unit 3 Coal-Fired Boiler, 11457 MMBtu/hour

Description:	Boiler Unit 3, 11457 MMBtu/hour cyclone-furnace coal fired boilers
Controls:	Overfire air, Selective Catalytic Reduction, Electrostatic Precipitator, Flue Gas Desulfurization
Primary Fuel:	Coal
Alternative Fuels:	No. 2 fuel oil for startup. Coal fines maximum14% by weight. Wood Waste maximum 5% of the boilers heat input (13% by weight). Other nonhazardous waste materials such as used oil with less than 50 ppm PCB, boiler cleaning chemicals, solvents, oil-contaminated soil, rags, absorbent materials/rags and papers.
Construction Commenced:	1970

Emission Unit 3 is subject to 401 KAR 61:015, Existing indirect heat exchangers applicable to an emissions unit with a capacity of more than 250 MMBtu/hour, which commenced construction before August 17, 1971. 40 CFR 60 Subpart D[3] and Da[4] are not applicable because the unit was constructed prior to the effective date of those regulations. However, the unit is subject to the federal Acid Rain and NO_X Budget Programs.

[3] 40 CFR 60 Subpart D, Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971.

[4] 40 CFR Subpart Da, Standards of Performance for Electric Utility Steam Generating Units for Which Construction Commenced After September 18, 1978

401 KAR 52:060, Acid rain permits, incorporates by reference 40 CFR Parts 72 to 78. Pursuant to 40 CFR, Part 73.10, Emission Unit 3 has 25,504 SO_2 allowance allocations for the years 2007 to 2009, then 25,558 allowances beginning in the year 2010.

401 KAR 51:160, NO_X requirements for large utility and industrial boilers, and 40 CFR 97, Subpart C, applies to this unit. The NO_X Budget Permit application was submitted to the Division, and received on November 11, 2004. Requirements contained in that application were incorporated into and made part of the NO_X Budget Permit. Pursuant to 401 KAR 52:020, Section 3, the source shall operate in compliance with those requirements.

A Flue Gas Desulfurization (FGD) scrubber was installed on this unit in 2006. When bypassing the scrubber, the flue gas will be vented to the atmosphere through the existing 800-foot stack. Unit 3 will also vent to atmosphere through the existing 800-foot stack when boiler fire has been extinguished, but the ID fans are still operating to allow the plant to begin maintenance work sooner during an outage. To address EPA objections to the previous draft permit, TVA has agreed to reduce SO_2 emissions to 1.2 lbs /MMBtu when the FGD scrubber is operating and to 3.1 lbs /MMBtu when the scrubber is bypassed. Scrubber bypass shall be limited to 720 hours in any 12-consecutive months.

Emission limits are as follows:

Pollutant	Emission Limit	Averaging Period	Regulations
PM	0.11 lbs/MMBtu	3-hour	401 KAR 61:015, Sec. 4(1) 40 CFR 51.110(a)
Opacity	20 %	6-minute	401 KAR 50:055, Sec 2(6) 40 CFR 51.110(a)
SO_2	1.2 lbs/MMBtu	24-hour	Revision to Kentucky SIP
SO_2, scrubber bypass	3.1 lbs/MMBtu	24-hour	Revision to Kentucky SIP
NO_X	0.86 lbs/MMBtu	annual	401 KAR 52:060 Sec. 2, 40 CFR 76.6(a)(2)

Emission Units 4, 5, and 6 Oil Fired Space Heaters, 25.8 MMBtu/hour

Description:	Three 25.8 MMBtu/hr steam generating boiler for building heat
Controls:	None
Primary Fuel:	No. 2 Fuel Oil
Installed:	Emission Unit 4 and 5: 1963 Emission Unit 6: 1970

These boilers, which are seldom used, provide steam to heat the powerhouse if the associated boiler unit is down during cold weather. There is one at each of the coal-fired boilers. These boilers do not provide steam for startup of the coal-fired boilers. Auxiliary boilers that were formerly used for that purpose in Unit 3 have been removed.

These units are subject to the notification requirements in 40 CFR Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters.

Emission limits are as follows:

Pollutant	Emission Limit	Averaging Period	Regulation
PM	0.11 lbs/MMBtu	3-hour	401 KAR 61:015, Sec. 4(1) 40 CFR 51.110(a)
Opacity	20 %	6-minute	401 KAR 61:015, Sec. 4(2) 40 CFR 51.110(a)
SO_2	2.1 lbs/MMBtu	24-hour	401 KAR 61:015, sec. 5(1) 40 CFR 51.110(a)

Emission Units 7-15 Oil Fired Space Heaters, 2.5 MMBtu/hour

Description:	Eleven 2.5 MMBtu/hour Space Heaters, Dravo/Hastings
Controls:	None
Primary Fuel:	No. 2 Fuel Oil
Installed:	Emission Units 7-12: 1970 Emission Units 13-15: 1981

There are eleven 2.5 MMBtu/hour oil-fired space heaters at PAF. Eight of the space heaters (EU 7A, 7B, 8A, 8B, and 9-12) are located in the Unit 3 powerhouse and three (EU 13-15) are located at the coal wash plant.

Emission limits are as follows:

Pollutant	Emission Limit	Averaging Period	Regulation
PM	0.1 lbs/MMBtu	3-hour	401 KAR 52:020 40 CFR 51.110(a)
Opacity	20 %	6-minute	401 KAR 61:015, Sec. 4(2) 40 CFR 51.110(a)
SO_2	0.8 lbs/MMBtu	24-hour	401 KAR 52:020 40 CFR 51.110(a)

Emission Units 16-18 Natural Draft Cooling Towers

Description:	Three natural draft cooling towers
Maximum Operating Rate:	53,040 gallons/minute
Controls:	Drift Eliminator
Construction Commenced:	Emission Units 16 - 17: 1968 Emission Unit 18: 1969

PAF has three counterblow, natural-draft, hyperbolic cooling towers that release heat to the environment. Dissolved solids found in cooling tower drift can consist of mineral matter, corrosion inhibitors, etc. These units are subject to 401 KAR 63:010, Fugitive emissions.

Emission Units 16-18, 19, 24, 36, 41, 52, 55-58, 71-73, 77 Fugitive Sources

Emission Unit	Description	Maximum Operating Rate	Control Devices	Construction Commenced
19	Receiving and Reclaim Hoppers	3000 tons/hour 17,000,000 tons/year	Wet suppression, enclosure, partial enclosure	1963
24	Coal Open Live Storage Piles #3 and #4	2000 tons/hour 17,000,000 tons/year	Enclosure, partial enclosure	1980
36	Coal Live Storage Silos #1 and #2	2000 tons/hour 17,000,000 tons/year	Enclosure	1963
55	Ash/Slag Reclaim from Slag Pond	134 tons/hour	None	1963
56	Ash/Slag Reclaim from Dewatering Area	200 tons/hour	None	1963
57	Ash/Slag Onsite Hauling	200 tons/hour	Wet suppression	1963
71	Transfer to New Conditioner Building Surge Bin and Crushers	2000 tons/hour	Enclosure, foam suppression	1999
72	Crushers (New Conditioner Building) and 3 Conditioners	1320 tons/hour	Enclosure, foam suppression, residual carryover	1999
73	Unit 3 Limestone Rail/Truck Unloading System	900 tons/hour	Wet suppression	2003
77	Unit 3 Contribution to Limestone Bulk Storage Pile	900 tons/hour	Telescoping Chute	2003

401 KAR 63:010[5] is applicable to these units. 40 CFR 60, Subpart Y[6] does not apply to Emission Units 19, 24, 36 and 40 CFR 60, Subpart OOO[7] does not apply to Emission Units 55-57 due to construction commencement dates. Although Subpart OOO does apply to Emission Units 73 and 77, pursuant to 40 CFR 60.672(d), truck dumping into any screening operation, feed hopper, or crusher is exempt from particulate matter and opacity standards under Subpart OOO. Since no other opacity standard applies, 401 KAR 63:010 applies.

Emission Units 20, 21, 37, 38 Coal Breakers and Handling

Emission Unit	Description	Maximum Operating Rate	Control Devices	Construction Commenced
20	Breaker Building (Breakers 1-2)	2000 tons/hour 17,000,000 tons/year	Enclosure, Foam Suppression	1963
21	Breaker Building (Breaker 3)	2000 tons/hour 17,000,000 tons/year	Enclosure, Foam Suppression	1970
37	Coal Handling Conditioner Building	2000 tons/hour 17,000,000 tons/year	Enclosure, Foam Suppression	1963
38	Coal Conveying and Bunker Room	2000 tons/hour 17,000,000 tons/year	Enclosure, Residual Carryover	1963

5 401 KAR 63:010, Fugitive emissions, applies to an apparatus, operation, or road which emits or may emit fugitive emissions provided that the fugitive emissions from such facility are not elsewhere subject to an opacity standard.

6 40 CFR 60, Subpart Y, Standards of Performance for Coal Preparation Plants, commenced after October 24, 1974.

7 40 CFR 60, Subpart OOO, Standards of Performance for Nonmetallic Mineral Processing Plants, commenced after August 3, 1983.

These units pre-date the applicability of 40 CFR 60, Subpart Y (October 24, 1974), emit pollutants from a stack or air pollution control device, were constructed prior to July 2, 1975, and hence are subject to 401 KAR 61:020[8].

Pursuant to 401 KAR 61:020, Section 3(1), opacity shall not equal or exceed 40%.

PM emission limits (3-hour average) are as follows:

Emission Unit	PM	PM Regulation
20	92.7 lbs/hour 263 tons/year	401 KAR 61:020, Sec 3(2) 40 CFR 51.110(a)
21	92.7 lbs/hour 263 tons/year	401 KAR 61:020, Sec 3(2) 40 CFR 51.110(a)
37	92.7 lbs/hour 263 tons/year	401 KAR 61:020, Sec 3(2) 40 CFR 51.110(a)
38	86.9 lbs/hour 263 tons/year	401 KAR 61:020, Sec 3(2) 40 CFR 51.110(a)

Emission Units 22, 23, 25-31, 35, 39, 40 Coal Handling and Washing Plant

Emission Unit	Description	Maximum Operating Rate	Control Devices	Construction Commenced
22	Transfer Station A	2000 tons/hour 13,000,000 tons/year	Enclosure, Residual Carryover of Foam Dust Suppression	1963
23	Transfer Station B	2000 tons/hour 6,500,000 tons/year		1970
25	Transfer Station G	2000 tons/hour 13,000,000 tons/year		1981
26	Transfer Station H	2000 tons/hour 13,000,000 tons/year	Enclosure, Foam Suppression	1981
27	Coal Storage Silo 5 & 6	2000 tons/hour, each 6,500,000 tons/year, each	Enclosure, Residual Carryover of Foam Dust Suppression	1981
28	Transfer Station J	2000 tons/hour 13,000,000 tons/year		1981
29	Transfer Station K	2000 tons/hour 13,000,000 tons/year	Enclosure	1981
30	Transfer Station L	1800 tons/hour 13,000,000 tons/year	Enclosure	1981
31	Transfer Station M	1800 tons/hour 13,000,000 tons/year	Enclosure	1981
35	Coal Reclaim Hopper, Long Term Storage Pile	2000 tons/hour 6,500,000 tons/year	Enclosure, Wet and Foam Suppression	1963
39	Receiving and Reclaim Hoppers	3000 tons/hour 17,000,000 tons/year	Enclosure	1981
40	Coal Wash Plant Coarse Refuse Disposal	400 Tons/hour	Wet suppression, partial enclosure	1981

[8] 401 KAR 61:020, Existing process operations, applicable for the control of emissions from existing process operations commenced before July 2, 1975 which are not subject to another particulate emission standard.

Total emissions of particulate matter from the Coal Washing Plant (Emission Units 22, 23, 25-31, and 35) shall not equal or exceed 100 lb/hour, 1000 lbs/day, and 50 tons/year. [401 KAR 51:050, Section 3, Permit No. O-87-012]

Coal processed through the units described above shall not exceed 13,000,000 tons in any 12-consecutive months.

40 CFR 60 Subpart Y is applicable to these units except for Emission Units 22 and 23, which were constructed prior to 1974. However, Subpart Y does not specify a particulate matter standard applicable to these units. Therefore, 401 KAR 61:020 applies to Emission Units 22, 23, 25-31, and 35, which applies to emission units that emit pollutants from a stack or control device (i.e., non-fugitive) that is not otherwise subject to a particulate emission standard. Emission Units 39 and 40 are sources of fugitive emissions. However, 401 KAR 63:010, Fugitive emissions, does not apply because Subpart Y specifies an opacity standard.

Pursuant to 40 CFR 60.252(c), opacity shall not equal or exceed 20% for any coal processing and conveying equipment, coal storage system, or coal transfer and loading system.

PM emission limits (3-hour average) are as follows:

Emission Unit	**Description**	**PM Emission Limit**	**Regulation**
22	Transfer Station A	0.45 lbs/hour 1.48 tons/year	401 KAR 61:020 40 CFR 51.110(a)
23	Transfer Station B	7.02 lbs/hour 11.41 tons/year	401 KAR 61:020 40 CFR 51.110(a)
25	Transfer Station G	0.31 lbs/hour 1.02 tons/year	401 KAR 61:020 40 CFR 51.110(a)
26	Transfer Station H	0.31 lbs/hour 1.02 tons/year.	401 KAR 61:020 40 CFR 51.110(a)
27	Coal Storage Silo 5	0.45 lbs/hour 0.74 tons/year	401 KAR 61:020 40 CFR 51.110(a)
27	Coal Storage Silo 6	0.22 lbs/hour 0.36 tons/year	401 KAR 61:020 40 CFR 51.110(a)
28	Transfer Station J	0.27 lbs/hour 0.88 tons/year	401 KAR 61:020 40 CFR 51.110(a)
29	Transfer Station K	0.27 lbs/hour 0.88 tons/year	401 KAR 61:020 40 CFR 51.110(a)
30	Transfer Station L	1.58 lbs/hour 5.7 tons/year	401 KAR 61:020 40 CFR 51.110(a))
31	Transfer Station M	0.24 lbs/hour 0.8 tons/year	401 KAR 61:020 40 CFR 51.110(a)
35	Coal Long-term Open Storage Pile/Coal Reclaim Hopper	0.27 lbs/hour 0.44 tons/year	401 KAR 61:020 40 CFR 51.110(a)

Emission Units 32 - 34 Coal Conveying and Bunker Roam

Emission Unit	Description	Maximum Operating Rate	Control Devices	Construction Commenced
32	Barge Unloader/Surge Hopper	2000 tons/hour 17,000,000 tons/year	Enclosure, water spray	1985
33	Transfer Station N (Breakers 4-7)	2000 tons/hour 17,000,000 tons/year	Enclosure, foam suppression, residual carryover, partial enclosure	1985
34	Transfer Station P and Storage Bypass, Coal Conveyor	2000 tons/hour 17,000,000 tons/year	Enclosure, foam suppression, residual carryover	1985

40 CFR 60 Subpart Y is applicable to these units. However, Subpart Y does not specify a particulate matter standard applicable to these units. Therefore, 401 KAR 59:010[9] is applicable to these units.

Pursuant to 40 CFR 60.252(c) and 401 KAR 59:010, Section 3(1)(a), opacity shall not equal or exceed 20%.

PM emission limits (3-hour average) are as follows:

Emission Unit	Description	PM Emission Limit	Regulation
32	Barge Unloader/Surge Hopper	58.4 lbs/hour 369 tons/year	401 KAR 59:010, Section 3(2) 40 CFR 51.110(a)
33	Transfer Station N (Breakers 4-7)	58.4 lbs/hour 369 tons/year	401 KAR 59:010, Section 3(2) 40 CFR 51.110(a)
34	Transfer Station P and Storage Bypass, Coal Conveyor	58.4 lbs/hour 369 tons/year	401 KAR 59:010, Section 3(2) 40 CFR 51.110(a)

Emission Units 41- 52 Limestone Handling

Emission Unit	Description	Maximum Operating Rate	Control Devices	Construction Commenced
41	Limestone Receiving	900 tons/hour 919,800 tons/year	Wet Suppression	1982
41A	Alternate Limestone Reclaim	80 tons/hour	None	1996
42	Limestone Reclaim/Receiving Hopper	900 tons/hour 919,800 tons/year	Bagfilter (DC-1)	1982
43-44	Limestone Conveying Transfer Point	900 tons/hour 919,800 tons/year	Bagfilters (DC-2A, 2B)	1982
45	Limestone Silo Loading	900 tons/hour 919,800 tons/year	Bagfilter (DC-3)	1982
46-48	Limestone Silo Unloading	240 tons/hour 919,800 tons/year	Bagfilters (DC-4A, 4B, 4C)	1982
49-51	Limestone Prep Building	300 tons/hour	Bagfilters (DC-5A,	1982

[9] 401 KAR 59:010, New process operations, applicable for the control of emissions from existing process operations commenced after July 2, 1975 which are not subject to another particulate emission standard.

Emission Unit	Description	Maximum Operating Rate	Control Devices	Construction Commenced
	Surge and Weigh Hopper	919,800 tons/year	5B, 5C)	
52	Limestone Stock-out and Storage	900 tons/hour 919,800 tons/year	Partial Enclosure	1982

Particulate matter emissions shall not exceed 25 tons in any 12-consecutive months. [Permit No. O-87-012]

Emission Units 42-51 are subject to 401 KAR 59:010, and Emission Units 41, 41A, and 52 are subject to 401 KAR 63:010. These units either pre-date 40 CFR 60, Subpart OOO or are exempted from Subpart OOO particulate matter and opacity standards pursuant to 40 CFR 60.672(d).

PM emission limits (3-hour average) are as follows:

Emission Unit	Description	PM Emission Limit	Regulation
42	Limestone Reclaim/Receiving Hopper	51.4 lbs/hour	401 KAR 59:010, Section 3(2) 40 CFR 51.110(a)
43-44	Limestone Conveying Transfer Point	51.4 lbs/hour	401 KAR 59:010, Section 3(2) 40 CFR 51.110(a)
45	Limestone Storage Silo Bin	51.4 lbs/hour	401 KAR 59:010, Section 3(2) 40 CFR 51.110(a)
46-48	Limestone Storage Silo Vibrating Feeder	41.6 lbs/hour	401 KAR 59:010, Section 3(2) 40 CFR 51.110(a)
49-51	Limestone Prep Building Surge Hopper	43.1 lbs/hour	401 KAR 59:010, Section 3(2) 40 CFR 51.110(a)

Emission Units 53-54 Two Lime Storage Silos

These units have been decommissioned and shall not be operated.

Emission Unit 58 Gypsum Handling

Emission Unit	Description	Maximum Operating Rate	Control Devices	Construction Commenced
58	Rim ditch formation	108 tons/hour	Wet suppression	1994
	Open drying of gypsum	167 tons/hour	Wet suppression	1994
	Excavation and transport of gypsum	167 tons/hour	Wet suppression	1983
	Soil cover transport	358 tons/hour	Wet suppression	1983

This unit is subject to 40 CFR 60, Subpart OOO, Standards of Performance for Nonmetallic Mineral Processing Plants commenced after August 3, 1983. However, pursuant to 40 CFR 60.672(d), truck dumping into any screening operation, feed hopper, or crusher is exempt from particulate matter and opacity standards under Subpart OOO. As another opacity standard is not applicable, this unit is subject to 401 KAR 63:010.

Emission Units 59-70 Reserved

Although previously permitted[10], these units were never constructed.

Emission Units 74-76 Limestone Handling

Emission Unit	Description	Maximum Operating Rate	Control Devices	Construction Commenced
74	Unit 3 Reclaim/Receiving Hopper (limestone)	900 tons/hour	Wet suppression	2003
75	Unit 3 Limestone Storage Silo	900 tons/hour	Enclosure	2003
76	Unit 3 Limestone Prep Building	600 tons/hour	Enclosure	2003

These units are subject 40 CFR 60 Subpart OOO. Emission Unit 75 is limited to 900 tons/hour and Emission Unit 76 is limited to 600 tons/hour.

Pursuant to CFR 672(a)(1), particulate matter stack emissions shall not exceed 0.05 g/dscm (0.022 gr/dscf).

Pursuant to 40 CFR 672(a)(2), visible stack emissions shall not equal or exceed 7% opacity.

Pursuant to 40 CFR 672(b), visible fugitive emissions shall not equal or exceed 10% opacity.

Emission Unit 79-84 Coal Fines Handling

Emission Unit	Description	Maximum Operating Rate	Control Devices	Construction Commenced
79	Pan scraper Load out from Coal Fines Pond to Stockpile	400 tons/hour	Wet suppression	2006
80	Coal Fines Stockpile	4.2 acres/day	Wet suppression	2006
81	Front-end Loader from Stockpile to Reclaim Hopper	200 tons/hour	Wet suppression	2006
82	Reclaim Hopper and Transfer Point (to Conveyor 63)	200 tons/hour	Enclosure	2006
83	Screw Conveyor and Transfer Point (to Conveyor 64)	200 tons/hour	Enclosure	2006
84	Belt Conveyor and Transfer Point (to BC-45 at Station A)	200 tons/hour	Enclosure	2006

These units are subject to 40 CFR 60, Subpart Y and to preclude applicability of 401 KAR 51:017, coal fines processed through Emission Units 79-84 shall not exceed 750,000 tons per any 12-consecutive months. Permit #VS-006-003 applied 401 KAR 63:010, Fugitive emissions to Emission Units 79-81. However, 401 KAR 63:010 is only applicable if fugitive emissions are not elsewhere subject to an opacity standard [401 KAR 63:010, Section 2(1)]. Since Subpart Y imposes an opacity standard, 401 KAR 63:010 does not apply.

[10] Permit No. S-99-064

Pursuant to 60.252(c), the owner or operator shall not cause to be discharged into the atmosphere from any coal processing and conveying equipment, coal storage system, or coal transfer and loading system, gases which exhibit 20 percent opacity or greater.

EMISSIONS AND OPERATING CAPS DESCRIPTIONS:

1. Coal processed through Emission Units 22, 23, 25-31, 35, 39, and 40 shall not exceed 13,000,000 tons per any 12 consecutive months.
2. Total emissions of particulate matter from the Coal Washing Plant (Emission Units 22, 23, 25-31, and 35) shall not equal or exceed 100 lb/hour, 1000 lbs/day, and 50 tons/year. [401 KAR 51:050, Section 3, Permit No. O-87-012]
3. To preclude applicability of 401 KAR 51:017, particulate matter emissions from limestone handling, Emission Units 41-52, shall not exceed 25 tons in any 12 consecutive months. [Permit No. O-87-012]
4. Emission Units 53 and 54 are decommissioned and shall not be operated.
5. Emission Units 75 and 76 are limited to 900 tons/hour and 600 tons/hour respectively.
6. To preclude applicability of 401 KAR 51:017, coal fines processed through Emission Units 79-84 shall not exceed 750,000 tons per any 12 consecutive months.
7. Pursuant to 401 KAR 63:020, the source shall not combust wood treated with arsenic (CCA) or other metals as preservatives.
8. Bypass of the Emission Unit 3 scrubber shall be limited to 30 days in any 12-consecutive months.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.

Appendix A

TVA Paradise
Emission Number Listing

Emission Unit Numbers			Unit Description
New ID	Previous Permit	DAQ Administrative	
1	1	COMB01	Unit 1, 6959 MMBtu/hour
2	2	COMB02	Unit 2, 6959 MMBtu/hour
3	3	COMB03	Unit 3, 11457 MMBtu/hour
4	26	COMB04	Unit 1 Building Heat Boiler, 25.8 MMBtu/hour
5	26	COMB04	Unit 2 Building Heat Boiler, 25.8 MMBtu/hour
6	28	COMB05	Unit 3 Building Heat Boiler, 25.8 MMBtu/hour
7	29	EQPT22	2 Dravo Heaters (Unit 3 Powerhouse)
8	29	EQPT22	2 Dravo Heaters (Unit 3 Powerhouse)
9	29	EQPT22	Dravo Heater (Unit 3 Powerhouse)
10	29	EQPT22	Dravo Heater (Unit 3 Powerhouse)
11	29	EQPT22	Dravo Heater (Unit 3 Powerhouse)
12	29	EQPT22	Dravo Heater (Unit 3 Powerhouse)
13	29	EQPT36	Dravo/Hastings Heater (Coal Wash Plant)
14	29	EQPT36	Dravo/Hastings Heater (Coal Wash Plant)
15	29	EQPT36	Dravo/Hastings Heater (Coal Wash Plant)
16-18	NA		Cooling Towers, 16 & 17
19	15	EQPT12	Receiving and Reclaim Hoppers
20	16	EQPT13	Breaker Building (Breakers 1 and 2)
21	16	EQPT13	Breaker Building (Breaker 3)
22	4	EQPT01	Coal Handling Transfer Station A
23	5	EQPT02	Coal Handling Transfer Station B
24	18	STOR01	Coal Open Live Storage Piles #3 and #4
25	6	EQPT03	Coal Handling Transfer Station G
26	7	EQPT04	Coal Handling Transfer Station H
27	8,9	EQPT05 & 06	Coal Live Storage Silos #5 and #6
28	10	EQPT07	Coal Handling Transfer Station J
29	12	EQPT09	Coal Handling Transfer Station K
30	14	EQPT11	Coal Handling Transfer Station L
31	13	EQPT10	Coal Handling Transfer Station M
32	17	EQPT14	Barge Unloader/Surge Hopper
33	17	EQPT14	Transfer Station N (Breakers 4, 5, 6, and 7)
34	17,35	EQPT14, 27	Transfer Station P and Storage Bypass, Coal Conveyor
35	11,15,17,18,33	EQPT08, 12, 14, 25	Coal Reclaim Hopper, Long-term Open Storage Pile
36	18	STOR01	Coal Live Storage Silos #1 and #2
37	16	EQPT13	Coal Handling Conditioner Building
38	17	EQPT14	Coal Conveying and Bunker Room
39	15	EQPT12	Receiving and Reclaim Hoppers

Emission Unit Numbers			Unit Description
New ID	**Previous Permit**	**DAQ Administrative**	
40	NA		Coal Wash Plant Coarse Refuse Disposal
41	20	EQPT16	Limestone Receiving
41A	NA		Alternate Limestone Reclaim System
42	20	EQPT16	Limestone Reclaim/Receiving Hopper
43-44	21	EQPT17	Limestone Conveying Transfer Point
45	23	EQPT19	Limestone Silo Loading
46-48	24	EQPT20	Limestone Silo Unloading
49-51	25	EQPT21	Limestone Prep Building Surge Hopper and Weigh Hopper
52	22	EQPT18	Limestone Stock-out and Storage
53-54	19	EQPT15	Two Limestone Silos (decommissioned)
55	30	EQPT23	Ash/Slag Reclaim from Slag Pond
56	30	EQPT23	Ash/Slag Reclaim from Dewatering Area
57	30	EQPT23	Ash/Slag Onsite Hauling
58	NA	EQPT30	Gypsum Handling (Rim ditch disposal began 1994)
			Rim Ditch Formation
			Open Drying of Gypsum
			Excavation and Transport of gypsum
			Soil Cover Transport
59-70			Reserved (never constructed)
		EQPT25	Coal Stock out Conveyor (never constructed)
		EQPT27	Coal Conveyor (never constructed)
		EQPT29	Transfer Station Q (never constructed)
			BC9 to Conditioner Surge Bin (never constructed)
			Transfer to Crushers (never constructed)
			Conditioners #5 and 6 (never constructed)
71	71		Transfer to New Conditioner Building Surge Bin and Crushers
72	72		Crushers (New Conditioner Building) and 3 Conditioners
73	NA	EQPT31	Unit 3 Limestone Rail/Truck Unloading System
74	NA	EQPT32	Unit 3 Reclaim/Receiving Hopper
75	NA	EQPT33	Unit 3 Limestone Storage Silo
76	NA	EQPT34	Unit 3 Limestone Prep Building
77	NA	EQPT35	Unit 3 Contribution to Limestone Bulk Storage Pile
78	NA		Unit 3 Stack (Scrubber)
79	59	EQPT40	Pan scraper Load out from Coal Fines to Stockpile
80	60	STOR07	Coal Fines Stockpile
81	61	EQPT41	Front-end Loader from Stockpile to Reclaim Hopper (62)
82	62	EQPT37	Reclaim Hopper and Transfer Point to Conveyor 63
83	63	EQPT38	Screw Conveyor and Transfer Point to Conveyor 64
84	64	EQPT39	Belt Conveyor and Transfer Point to BC-45 at Station A